Seascan

User Manual

Model 102 & 202

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Seatronics Ltd
Geoscan House
Denmore Road
Aberdeen
AB23 8JW
Tel: +44 (0) 1224 853100
Fax: +44 (0) 1224 853101

Systems Engineering & Assessment Ltd
Beckington Castle
PO Box 800
Frome BA11 6TB UK
Tel: +44 (0) 1373 852 000Fax: +44 (0) 1373 831 133

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1 INTRODUCTION

seascan is a device which allows a standard echo sounder, navigation and plotter system to be used as a complete ground discrimination system as shown in Figure 1-1. This document provides the necessary information for:

- installation.
- operation.
- trouble shooting.

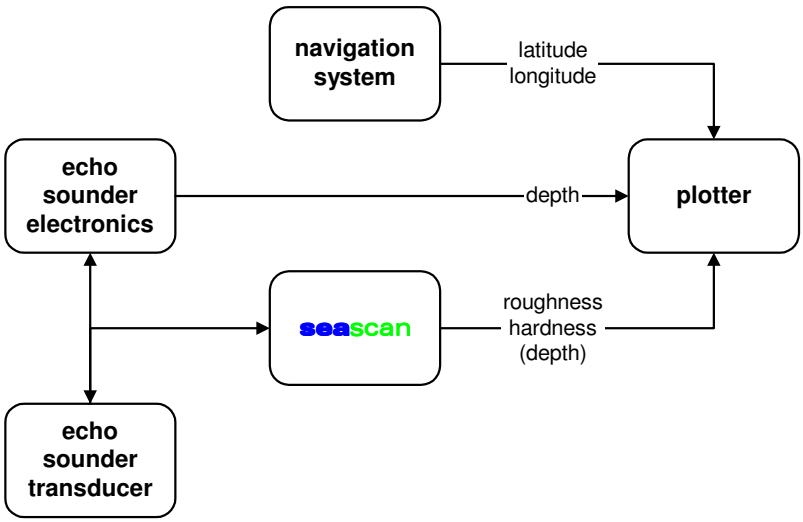


Figure 1-1 - Ground Discrimination System Components

There are two models in the **sea**scan product range - 102 and 202. The 202 model can interface to more echo sounders because it has a wider frequency range and a larger power handling capability. The installation and use of the 102 and 202 models are identical.

2 GENERAL DESCRIPTION

The **seascan** system package should contain the following items:

- main unit.
- remote interface unit.
- cable kit.
- mounting bracket kit.
- user guide (this document).
- PC Software Installation CD.

2.1 MAIN UNIT

The **seascan** main unit (Figure 2-1) is the heart of the system. It listens to the transmitted echo sounder pulse in order to tune its own receiver and optimise its internal settings. It then listens to the received echoes which it analyses into information about the seabed. This information is then transmitted by the main unit to the plotter software. The main unit is housed in a metal enclosure and is powered from the vessel's DC supply.

Figure 2-1 - Main Unit

2.2 TRANSDUCER INTERFACE BOX

The Transducer Interface Box (TIB) (Figure 2-2) isolates the echo sounder from the seascan main unit and ensures that the presence of seascan does not adversely affect the performance of the host echo sounder. The transducer interface box is housed in a die cast box and is installed close to the echo sounder itself. The enclosure is water resistant and all cable entries are made through glands. A long umbilical cable to the main unit connects the transducer interface box. This cable carries power and control signals to the transducer interface box and carries transmitted pulse and received echo signals back to the main unit. A white high voltage flying lead is also supplied connected to the echo sounder cable gland.

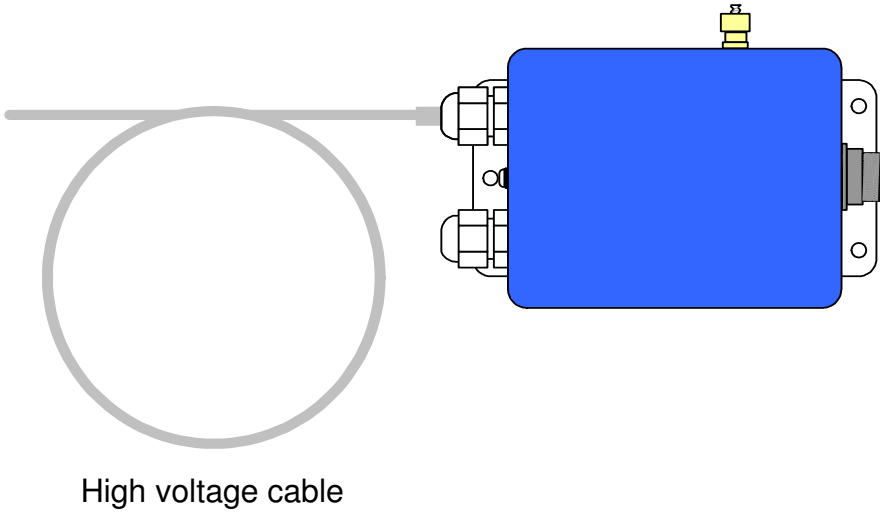


Figure 2-2 - Transducer Interface Box

2.3 MOUNTING BRACKET KIT

The mounting bracket kit contains four slide-on brackets which allow the main unit to be mounted in a variety of configurations including:

- attached to a horizontal or vertical surface such as chart table or desk area.
- suspended beneath a horizontal surface
- flush-mounted in a panel.

2.4 CABLE KIT

The cable kit contains the cables necessary to complete the installation of the **sea**scan main unit, namely:

- a lead from Transducer Interface Box to the main unit;
- a serial interface cable for connection to the plotter computer;
- a USB cable for connection to the plotter computer (as an alternative to the above);
- a DC supply cable for connection to the ship's supply.

TIB to **sea**scan cable

Serial lead to plotter computer

USB lead to plotter computer

Power lead

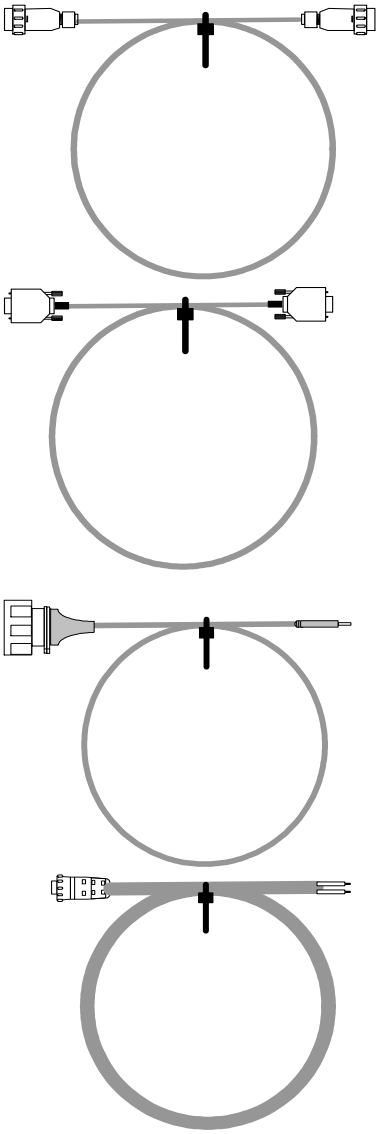


Figure 2-3 - seascan Cable Kit

3 INSTALLATION

This section describes the procedures for installing **sea**scan on a vessel which is already equipped with:

- a host echo sounder.
- a transducer mounted in good contact with the water.
- a computer with plotting software which has a **sea**scan interface.

Both mechanical and electrical aspects of installation are covered.

3.1 MECHNICAL

3.1.1 Transducer Interface Box

SAFETY WARNING

THE SEASCAN TRANSDUCER INTERFACE BOX CAN CONTAIN HIGH VOLTAGES AND CURRENTS. ENSURE THAT IT IS NOT CONNECTED TO THE HOST ECHO SOUNDER OR TO THE MAIN UNIT WHEN MOUNTING.

The TIB should be bolted or otherwise secured to a convenient surface close to the host echo sounder. The TIB consists of a die cast box with flanges. The overall dimensions of the are 160mm long by 90mm wide by 60mm high which include the cable glands but exclude the cables. The positions of the mounting holes are shown in **Error! Reference source not found.** (not to scale). The side with three holes should be mounted next to the echo sounder cabling.

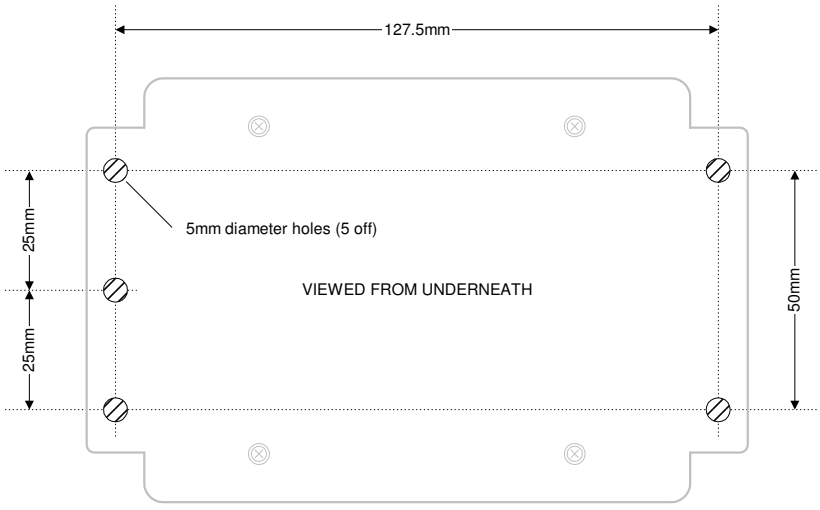


Figure 3-1 Transducer Interface Box Mounting Template

3.1.2 Main Unit

SAFETY WARNING
THE SEASCAN MAIN UNIT HAS SHARP EDGES. WHEN INSTALLING ON A DECKHEAD ENSURE THAT THERE IS NO POSSIBILITY OF HEAD INJURY DURING NORMAL USE.

The main unit should be installed at a convenient place between the transducer interface box and the plotter computer. Access to the front panel should be permanently available. Access to the rear panel should be possible on an occasional basis. Using the brackets supplied, the main unit can be mounted in a variety of configurations such as shown in Figure 3-2. To use these brackets, take a screwdriver and gently undo the front panel (five screws). Slide it a little to one side and two brackets can be slid onto either the upper or lower grooves in the side of the casing (Figure 3-3). Slide the front panel the other way, and the other two brackets can be slid onto the other side. Centre the front panel, and replace the five screws.

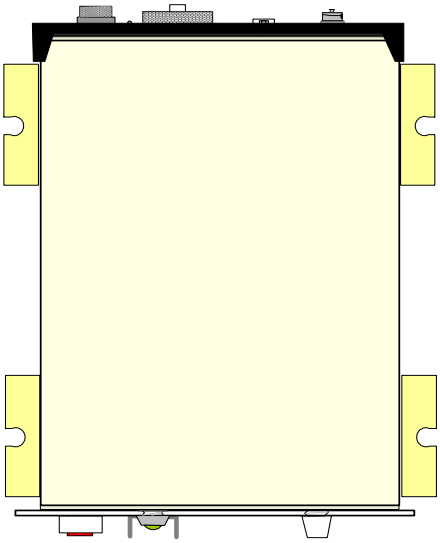


Figure 3-2 - Horizontal Mounting

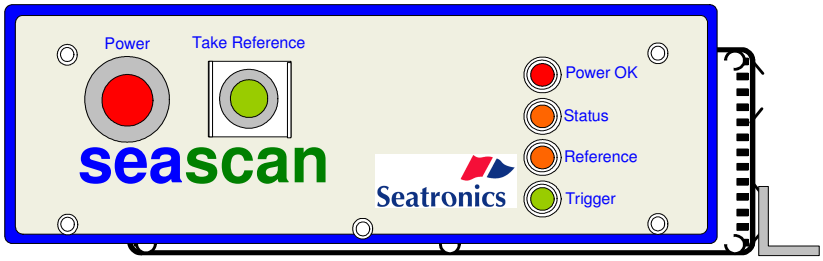


Figure 3-3– Attaching the brackets

Deck head mounting is the same, but sliding the brackets into the upper channels; the other way up.

For either of these circumstances, the brackets can be moved to suit, or they can be at full extension. In this case, the screws would be on a rectangle 130mm deep by 74mm wide. The holes may be up to 5.5mm diameter.

To mount by the front panel, a rectangular cut-out must be made in a suitable panel, and the Seascan unit slid in (much like a car radio), until its front panel is against the panel. The unit should then be retained. This could be by small pieces of wood, screwed into the panel as shown below. The cut-out should be 54mm by 170mm, or a little larger.

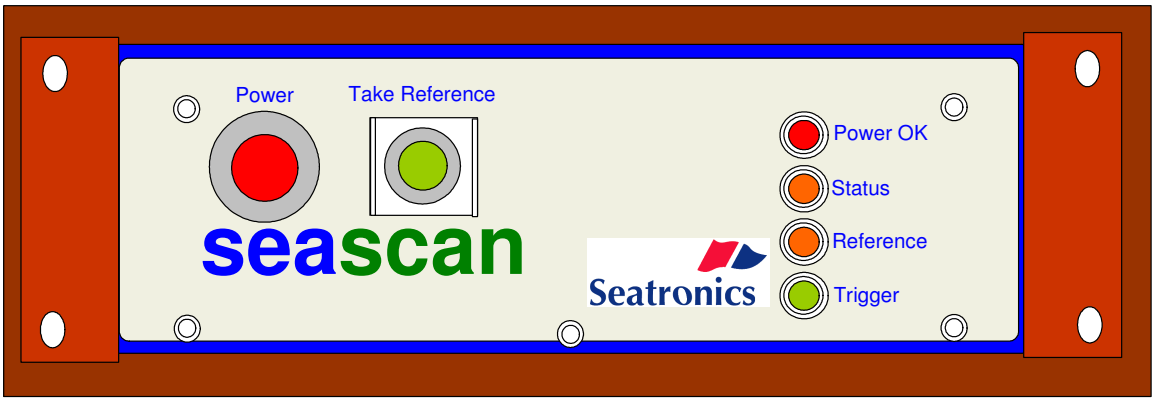


Figure 3-4 Panel Mounting

3.2 ELECTRICAL

The following electrical connections need to be made:

- the transducer interface box to the host echo sounder.
- the transducer interface box to the main unit.
- the main unit to the DC supply.
- the main unit to the computer plotter.
- earthing of remote and main units.

Procedures for each of these connections are given in the following sections.

3.2.1 Echo Sounder Interface

SAFETY WARNING
HIGH VOLTAGES AND CURRENTS EXIST ON ECHO SOUNDER CABLES. ENSURE THAT THE HOST ECHO SOUNDER IS TURNED OFF BEFORE ATTEMPTING INSTALLATION.

The **sea**scan interface to the host echo sounder is very simple and can be implemented by one of two methods, namely,

- the echo sounder cable is cut and the transducer interface box is inserted as a junction box.
- a flying lead from the transducer interface box is connected to the echo sounder cable.

The different methods are illustrated in Figure 3-5. The junction box method is the recommended approach for permanent installation as it offers a more reliable and electrically superior connection. The flying lead method should only be used where it is not possible to mount the transducer interface box along the line of the existing echo sounder to transducer cable run.

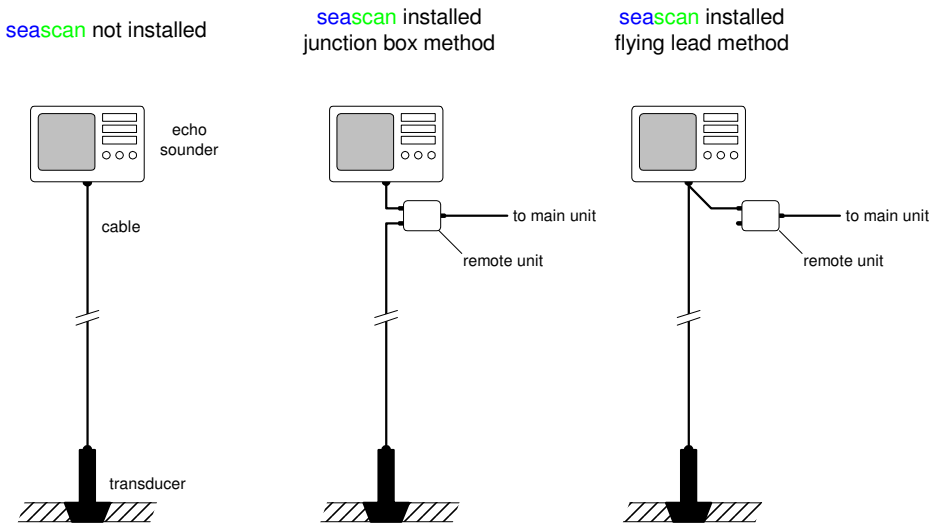


Figure 3-5 -Echo Sounder Interface

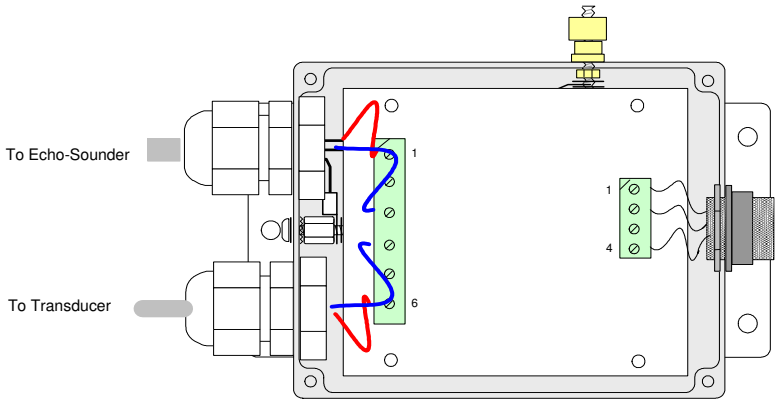


Figure 3-6 - Junction Box Method Connections

For initial installation by the junction box method (see Figure 3-6) use the following procedure

step 1 unplug transducer interface box from main unit if connected.

step 2 unscrew 4 retaining screws and remove lid of transducer interface box.

step 3 loosen ECHO SOUNDER cable gland.

step 4 unscrew the cable connectors (first and third screws).

step 5 remove ring terminal from earthing point between the two cable glands.

step 6 remove the white high voltage cable.

step 7 loosen TRANSDUCER cable gland.

step 8 remove nylon screw from gland opening.

step 9 cut echo sounder cable and expose 50mm of insulated conductors on both cut ends, trim about 5mm of insulation from the signal conductors.

step 10 insert cable from echo sounder through cable gland marked ECHO SOUNDER.

step 11 screw the cables into the first and third screw-clamps.

step 12 connect cable screen to earthing point between the two cable glands.

step 13 tighten ECHO SOUNDER cable gland

step 14 place transducer end of cable through TRANSDUCER cable gland.

step 15 screw the cables into the fourth and sixth screw-clamps, ensuring that connection 3 & 4 are connected to the same colour conductor and that connection 1 and 6 are both connected to the other colour conductor (see Figure 3-6).

step 16 connect cable screen to earthing point between the two cable glands and tighten.

step 17 tighten TRANSDUCER cable gland

step 18 replace lid, taking care to maintain the integrity of the waterproof seal and tighten 4 retaining screws and ensuring that markings on lid align with the correct glands.

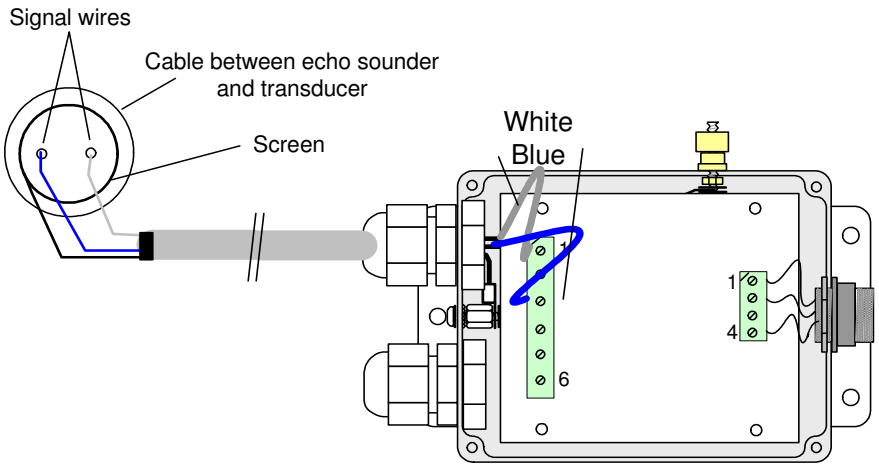


Figure 3-7 - Flying Lead Method Connections

For initial installation by the flying lead method (Figure 3-7) use the following procedure

step 1 cut white cable to shortest possible length.

step 2 trim cable end exposing blue and white conductors and braid screen.

step 3 connect blue and white conductors to the echo sounder signal wires.

step 4 connect braid screen to echo sounder cable screen.

It is important that the high voltage cable run should be kept as short as possible. On the supplied high voltage cable the black conductor is connected to the cable screen. Precise details of the connection depends on the echo sounder cable and termination method.

3.2.2 Transducer Interface Box to Main Unit

The transducer interface box is connected by the umbilical cable to the main unit. The cable is permanently connected at the transducer interface box end and has a connector at the main unit end. The cable is 5m in length to accommodate the widest range of installations. The cable should not be shortened. The 5m of cable allows installation of the transducer interface box close to the echo sounder and the main unit close to the computer. If, after installation, there is any slack cable then it should be bundled rather than coiled as shown in Figure 3-8. Insert the connector in the socket marked TRANSDUCER INTERFACE BOX on the rear panel of the main unit.

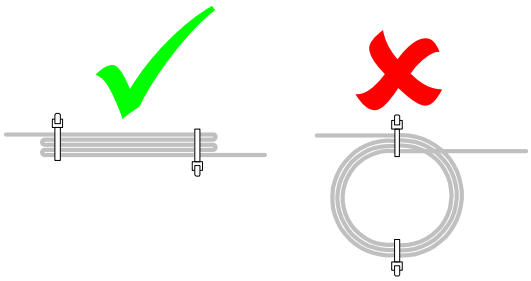


Figure 3-8 - Excess Cable Length

3.2.3 DC Supply

SAFETY WARNING
ENSURE THAT THE VESSEL'S DC SUPPLY IS ISOLATED BEFORE MAKING A PERMANENT CONNECTION.

The DC supply cable is supplied with a connector at one end and bare wires at the other. The connections are brown for positive and blue for negative. The supplied cable is 1.5m long. For a permanent installation this can be cut to suit the actual cable run. Connect the bare ends to the vessel's DC supply as shown in Figure 3-9.

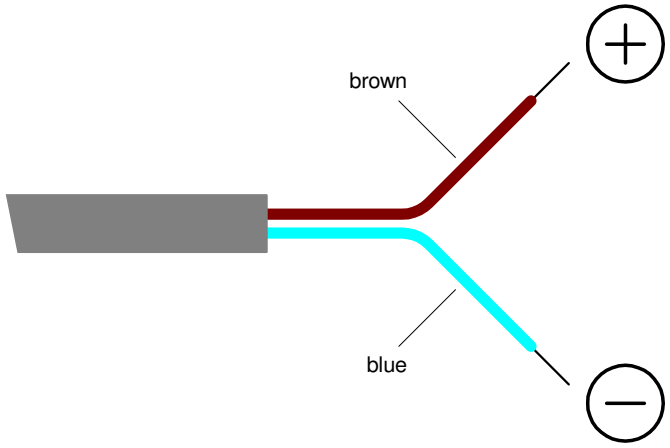


Figure 3-9 - DC Supply Connections

3.2.4 Serial Interface

The serial interface cable comprises two parts - a 3m cable itself with a 9 way D type connector at each. Connect the other end of the cable to a serial interface port on the computer as detailed in the plotter software user documentation.

3.2.5 USB Interface

The USB interface lead provides an alternative interface. Either the USB lead or the serial interface lead should be used.

3.2.6 Earthing

The main unit and the transducer interface box both have studs marked EARTH. It is important that these are connected together with an earth strap that is then taken to a good earthing point on the vessel. This earthing arrangement is shown in Figure 3-10. The end of the earth strap can be tied to the echo sounder earth if it is grounded.

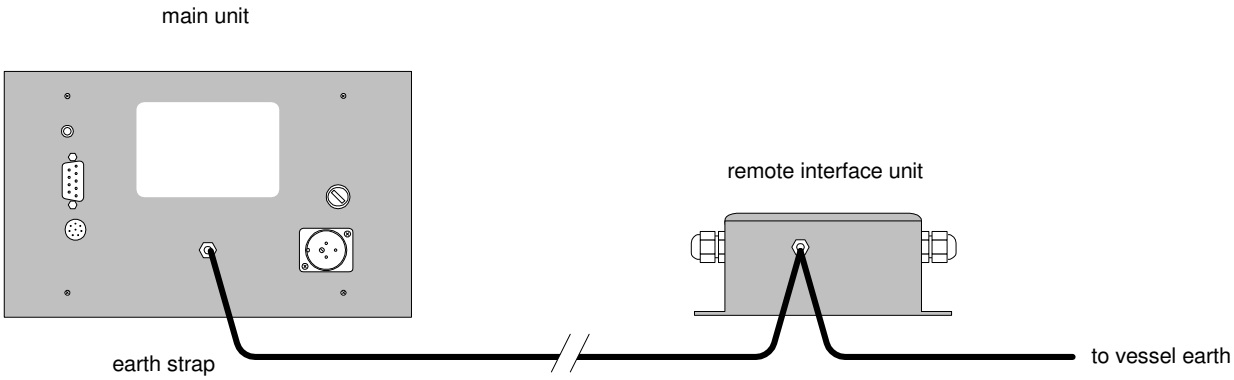


Figure 3-10 - Earthing Arrangement

4 OPERATION

The seascan ground discrimination system has been designed for ease of operation with a minimum of user interaction. This section describes the controls, displays and connectors on the front and rear panels and then the facilities available to the user.

4.1 FRONT PANEL

The seascan front panel is shown in Figure 4-1 and contains:

- the on-off switch.
- a reference button.
- the power LED.
- the status LED.
- the reference LED.
- the trigger LED.

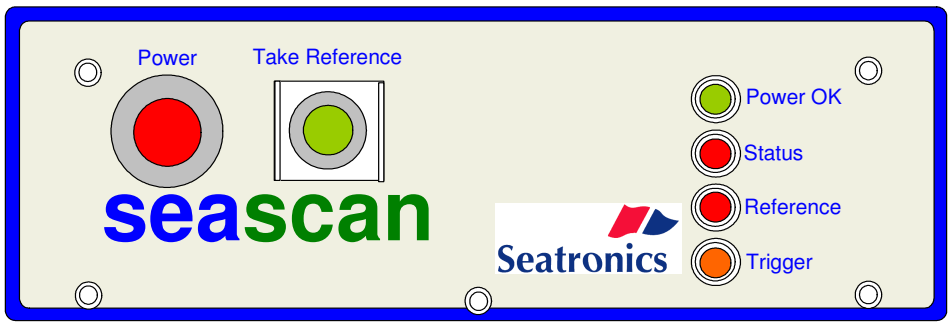


Figure 4-1 - seascan Front Panel

4.1.1 On-Off Switch

The on-off switch is located at the left of the front panel and is protected by a surround.

4.1.2 Take Reference Button

The reference button on the front panel is used to reference the system outputs to the prevailing seabed parameters (Section 4.5).

The reference button is also used during the power-on sequence to select between the two serial output formats (Section 4.4).

4.1.3 Power LED

The green power LED is located at the top of the LED column. It provides an indication of the state of the internal power supplies.

4.1.4 Status LED

The red status LED located second down indicates a fault condition when permanently lit and the transmission of data over the serial link when flashing.

The status LED is also used during the power-on sequence to indicate the current serial output format (Section 4.4).

4.1.5 Reference LED

The red reference LED located third down on the right of the front panel indicates whether the system output is referenced to known seabed parameters (Section 4.5).

The reference LED is also used during the power-on sequence to indicate the current serial output format (Section 4.4).

4.1.6 Trigger LED

The front panel trigger LED indicates the presence of a transmitted pulse on the echo sounder input. If the system consistently fails to find a pulse, for instance when the echo sounder is turned off or the frequency is changed, the system will automatically enter a re-acquisition mode. If pulses are being transmitted then the system can take up to 10 seconds to find the pulse and re-tune the system, depending on the echo sounder depth setting. If no pulses are being transmitted then the system will wait indefinitely.

4.2 REAR PANEL

The **seascan** rear panel is shown in Figure 4-2 and contains:

- DC power input
- an earthing stud
- RS232 connector
- USB connector
- the interface to the TIB.

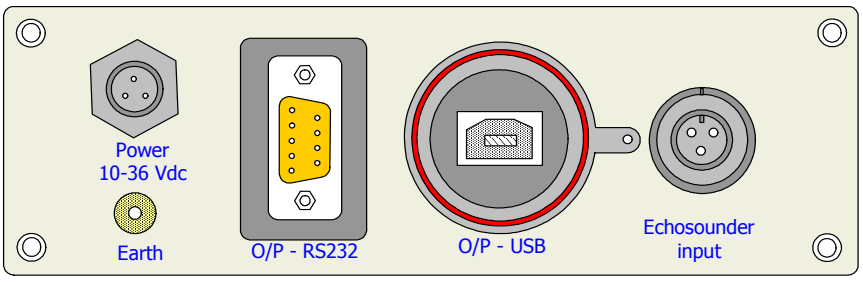


Figure 4-2 - seascan Rear Panel

In normal operation, access to the rear panel is not required.

4.2.1 RS232C Serial Connector

The 9 way RS232C port is used to connect the main unit to the computer which runs the plotter program. Either it or the USB connector should be connected at installation time and not changed subsequently.

4.2.2 USB Connector

The USB port is used to connect the main unit to the computer which runs the plotter program. Either it or the Serial connector should be connected at installation time and not changed subsequently.

4.2.3 Echosounder Input Connector

This plug is used to connect the main unit to the transducer interface box. It should be connected at installation time and not changed subsequently.

4.2.4 DC Supply Connector

The DC supply socket is used to power the main unit from the vessel's supply. It should be connected at installation time and not changed subsequently.

4.2.5 Earthing Stud

The earthing stud in the middle of the rear panel is used to provide a common ground for the **seascan** equipment. It should be connected during installation and not changed subsequently.

4.3 WHAT THE LEDs MEAN

The status, reference and trigger LEDs on the right of the front panel have different meanings depending on which of the six possible system modes is current, namely,

- a **self test** diagnostic phase automatically initiated by applying power to the system.
- a **format selection** phase when the serial output format can be changed by the user (see Section 4.4). This phase follows immediately on from the self test phase.
- a **test pattern** phase when the system outputs a known pattern over the serial link which can be checked by the computer. This phase follows immediately on from the format selection phase.
- a **parameter transfer** phase when the system outputs internal settings over the serial link for use by the computer. This phase follows immediately on from the test pattern phase.
- **normal operation,** in either the un-referenced or referenced state (see Section 4.5). This phase follows immediately on from the parameter transfer phase.
- the **fault condition** mode which can be entered at any time. The system remains in this mode until turned off.

The flashing codes for the LEDs are shown in Figure 4-3.

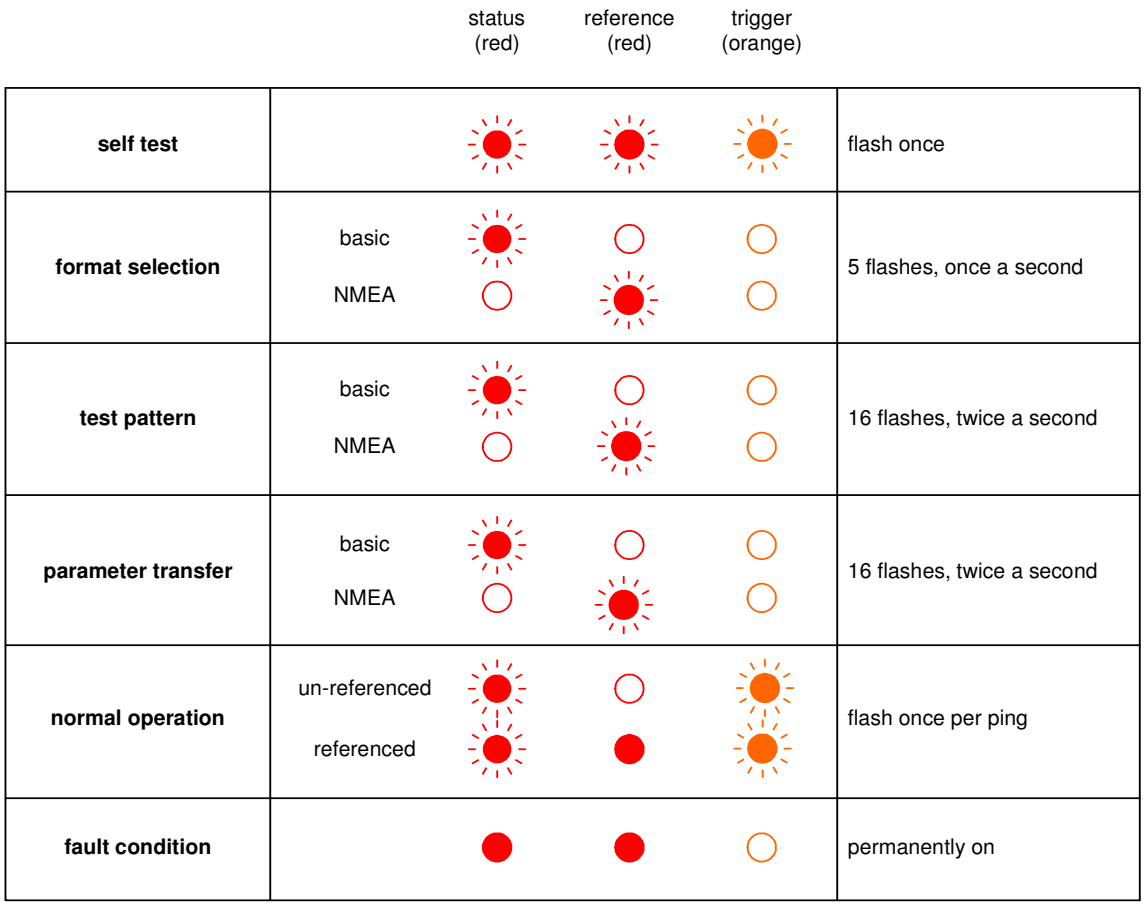


Figure 4-3 - LED Codes

4.4 CHANGING THE SERIAL OUTPUT FORMAT

The seascan serial output can be produced in one of two formats, namely,

- basic ASCII string.
- NMEA sentence.

The choice of format is determined by which plotter is being used and this information should be available in the plotter supplier's documentation. The system is delivered with the basic format selected.

The currently selected message output format are checked by observing the **REFERENCE** and **STATUS** LEDs immediately after power-on (see Section 4.3). If the **STATUS** LED flashes then basic format is selected. If the **REFERENCE** LED flashes then the NMEA format is selected.

The output format is changed by using the **REFERENCE** button on the front panel to toggle the settings within four seconds immediately after the unit power is switched on:

1) Power on the Unit

2) Press the reference button to toggle through three settings

Basic Format	REFERECE is lit
NMEA Format	STATUS is lit
Stored setting	REFERENCE and STATUS are lit.

After four flashes of the LEDs, data will be output in the selected format. The STATUS or REFERENCE indicator will flash rapidly indicating diagnostic messages being output.

The selected message output format is remembered by the system when it is powered off.

4.5 REFERENCING THE SYSTEM

The **sea**scan system automatically compensates for changes in echo sounder frequency, power level and pulse length and for changes in depth. Therefore as long as the sea bed remains unchanged the roughness and hardness outputs from the system will remain centred on the same values. There will always be a small amount of variation about these values due to system noise and natural variability. The actual numerical values which are produced are governed by scaling within the system. This scaling can be set to one of two states, namely,

- factory default settings.
- known ground settings.

The system can be operated successfully in both states. When using the factory default settings, it is called un-referenced operation and when using the known ground settings it is called referenced operation. In either referenced or un-referenced operation, the outputs are consistent and repeatable so that if the same ground is revisited the system outputs will return to be centred on the same values.

The difference between the two states is that in referenced operation the user has some control over the absolute values produced. This is achieved by pressing the reference button on the front panel when traversing known ground. Pressing the button will light the front panel reference LED and set the outputs for this sea bed type to be centred on a roughness value of 1 and a hardness value of 1. It is recommended that the system is referenced to a mid range sea bed type such as sand. This scaling will remain in force until the button is pressed again when it reverts to un-referenced operation using the factory default settings. If the button is pressed again the system will be referenced to the latest sea bed type and not the previous one.

The system remembers which state it is in (referenced or un-referenced) and the scaling parameters when it is powered off. The scaling parameters are made available to the plotter software during the power-on sequence.

5 TROUBLE SHOOTING

The seascan ground discrimination system has been designed for reliability and continuous trouble free operation. There is no need for routine maintenance. This section gives initial guidelines for trouble shooting basic faults which can occur from time to time, especially when the installation is disturbed. If the suggested simple remedies do not work, the user should not open the unit and attempt repair himself but should contact his distributor.

Fault	**action**
power LEDs off	check on off switch check vessel's DC supply check DC supply lead check DC fuse
status LED permanently on	turn off, turn on and if fault reoccurs contact distributor
trigger LED not flashing	check that echo sounder is transmitting check that echo sounder is receiving check echo sounder connection check umbilical cable is connected if all okay then contact distributor
trigger LED flashing but status LED not flashing	check echo sounder power level within limits check echo sounder frequency within limits check echo depth within limits contact distributor
status LED flashing but plotter not responding	check serial or USB cable connection check serial output format contact distributor or plotter supplier

6 TECHNICAL SPECIFICATION

The technical specification for the seascan ground discrimination systems is given in Table 6.1.

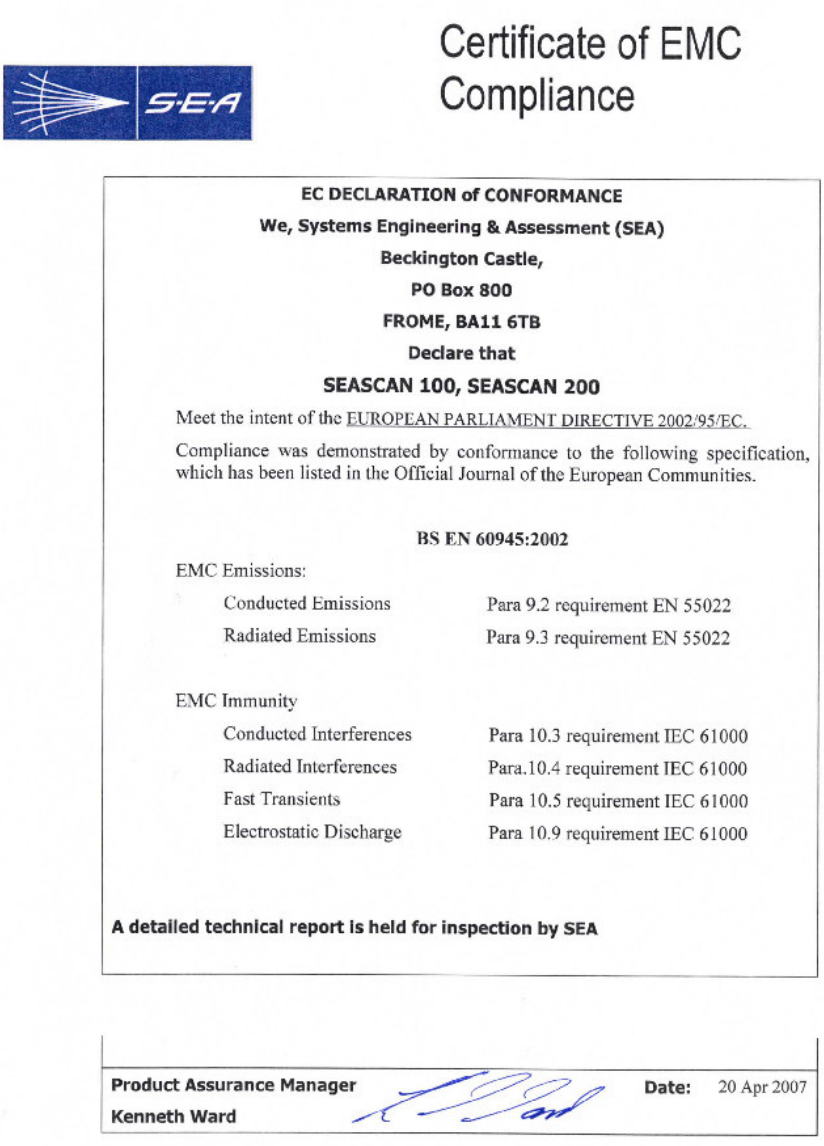
echo sounder frequency	28kHz to 100kHz seascan 102 20kHz to 200kHz seascan 202
maximum echo sounder power	4kW seascan 102 10kW seascan 202
transducer impedance	50Ω to 200Ω
insertion loss	<0.5dB
frequency selection	automatic
power level compensation	automatic
pulse length compensation	automatic
power level referencing	manual, one time
minimum operating depth	10m
maximum operating depth	set by host echo sounder and bottom type
update rate	tracks host echo sounder PRF
RS232C serial interface settings	4800 baud, 8 data bits, 1 stop bit or 38400 baud, 8 data bits, 1 stop bit
output format	basic ASCII string or NMEA-0183 sentence
diagnostics	built in self test at power on
DC supply voltage	10V to 36V
power consumption	3W
dimensions	228mm × 190mm × 56mm Main unit 160mm × 90mm × 60mm Transducer Interface
weight	1.1 kg main unit 0.9kg remote interface unit
operating temperature	0°C to 40°C

Table 6.1 - seascan Technical Specification

7 COMPLIANCE CERTIFICATES

The seascan ground discrimination system series have been designed and fully tested to give good electromagnetic compatibility properties. This means the system will not produce unwanted interference or be susceptible to interference from other sources in a normal operating environment. In the presence of high field strengths and electrostatic discharges occasional pings may be missed but the loss of data will be temporary.

A copy of the Certificate of Compliance is included as Figure 7-1.



Certificate of EMC Compliance

EC DECLARATION of CONFORMANCE

We, Systems Engineering & Assessment (SEA)

Beckington Castle,

PO Box 800

FROME, BA11 6TB

Declare that

SEASCAN 100, SEASCAN 200

Meet the intent of the EUROPEAN PARLIAMENT DIRECTIVE 2002/95/EC.

Compliance was demonstrated by conformance to the following specification, which has been listed in the Official Journal of the European Communities.

BS EN 60945:2002

EMC Emissions:

Conducted Emissions	Para 9.2 requirement EN 55022
Radiated Emissions	Para 9.3 requirement EN 55022

EMC Immunity

Conducted Interferences	Para 10.3 requirement IEC 61000
Radiated Interferences	Para.10.4 requirement IEC 61000
Fast Transients	Para 10.5 requirement IEC 61000
Electrostatic Discharge	Para 10.9 requirement IEC 61000

A detailed technical report is held for inspection by SEA

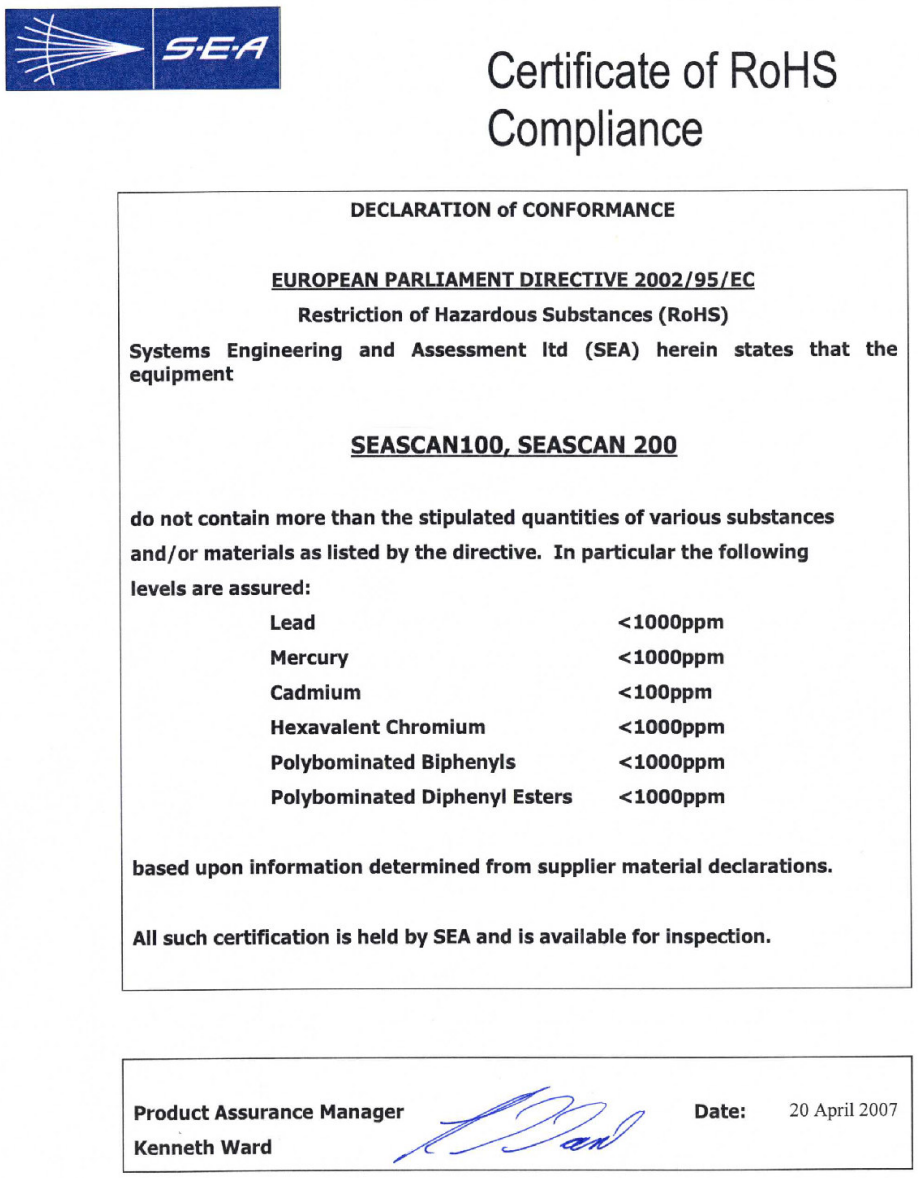
Product Assurance Manager **Date:** 20 Apr 2007

Kenneth Ward

Figure 7-1 – Certificate of EMC Compliance

The seascan ground discrimination series have been designed to comply with EU directive 2002/95/EC on Restriction of Hazardous substances (RoHS).

A copy of the Certificate of Compliance is included as Figure 7-2.



Certificate of RoHS Compliance

DECLARATION of CONFORMANCE

EUROPEAN PARLIAMENT DIRECTIVE 2002/95/EC

Restriction of Hazardous Substances (RoHS)

Systems Engineering and Assessment ltd (SEA) herein states that the equipment

SEASCAN100, SEASCAN 200

do not contain more than the stipulated quantities of various substances and/or materials as listed by the directive. In particular the following levels are assured:

Lead	**<1000ppm**
Mercury	**<1000ppm**
Cadmium	**<100ppm**
Hexavalent Chromium	**<1000ppm**
Polybominated Biphenyls	**<1000ppm**
Polybominated Diphenyl Esters	**<1000ppm**

based upon information determined from supplier material declarations.

All such certification is held by SEA and is available for inspection.

Product Assurance Manager
Kenneth Ward

Date: 20 April 2007

Figure 7-2 – Certificate of RoHS Compliance

8 PATENT PROTECTION

The seascan ground discrimination systems are based on patented techniques and enjoy protection in a number of countries worldwide. The relevant patents are given in Table 8.1.

country	application number	serial number
United Kingdom	8221670	2102573
United States	572055	4648081
Canada	445335	1231168
France	85302020.4	0156636
United Kingdom	85302020.4	0156636
Australia	40193/85	586623
Canada	477145	1253612
India	216/MAS/85	164623
Norway	851118	166347
Spain	541508	541508/X
United States	715017	4777630
Europe	90112342.2	0397221
France	90112342.2	0397221
The Netherlands	90112342.2	0397221
United Kingdom	90112342.2	0397221
Australia	42821/89	626921
Norway	90.3831	180763
Europe	92301560.6	0501743
France	92301560.6	0501743
United Kingdom	92301560.6	0501743
United Kingdom	9927462.3	pending

Table 8.1 - Patents

ANNEX A

PC SOFTWARE INSTALLATION AND SET-UP

A.1 SOFTWARE DESCRIPTION

The PC software to support the **seascan** unit is provided on the CD contained with the packaging.

The software application provides the following functions:

1) Selection of the system communications Baud Rate

2) The entry and transmission of the calibration values to the **seascan** unit.

3) Monitoring of the **seascan** communication status

4) Monitoring of the **seascan** output messages

5) Display of the **seascan** output message stream within the message window

6) The ability for the user to input transducer depth (**seascan** 202 models only)

The software installation CD also installs drivers to allow communications with the **seascan** unit over the USB connection as though it were a standard PC COM port. These 'virtual COM port' drivers are copied to the target machine by the install application. The drivers will need to be activated on first connection of the **seascan** unit.

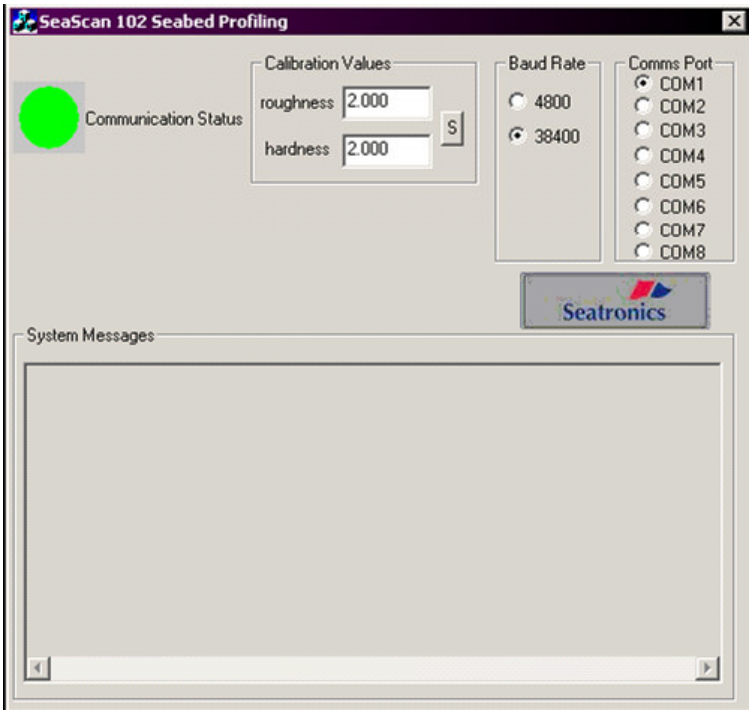


Figure A-1 Seascan PC software interface

A.2 SOFTWARE INSTALLATION

Installation of the software application is carried out using a Windows software installer application from the CD provided. To install the **seascan** follow these steps.

- When following the Installation procedures, ensure that the Seascan unit is **DISCONNECTED** to the host PC with the USB or the serial cable.
- Ensure the subject PC is **DISCONNECTED** from any Internet access. (Pull the Ethernet plug until this entire procedure is complete). This will prevent Windows from attempting to access the internet to look for the Seascan drivers.

A.2.1 Installing .NET Framework

The **seascan** software application requires installation of extension libraries to Windows. These are included on the Installation CD.

1) Insert the Installation CD

2) From 'Windows Explorer' open the directory on the Installation CD called 'MS .NET Framework'.

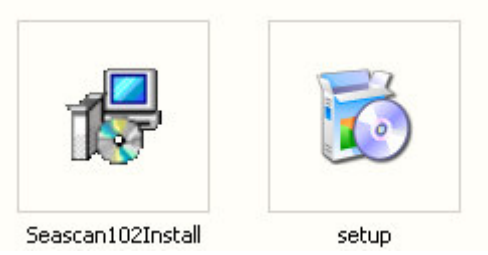
3) Double Click on the 'dotnetfx' to unpack and install Microsoft .NET Framework

4) Follow the instructions presented.

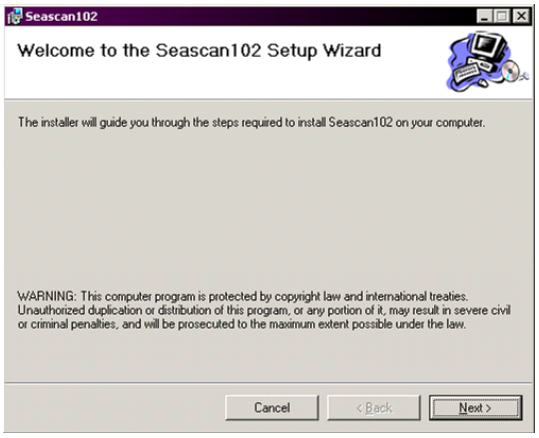
A.2.2 Installing the Seabed Profiling Application

1 Insert the **seascan** CD into the PC CD driver

2 Use "Windows Explorer" or "My Computer" to select the CD drive letter and display the file contents of the CD. The CD will contain the following files.

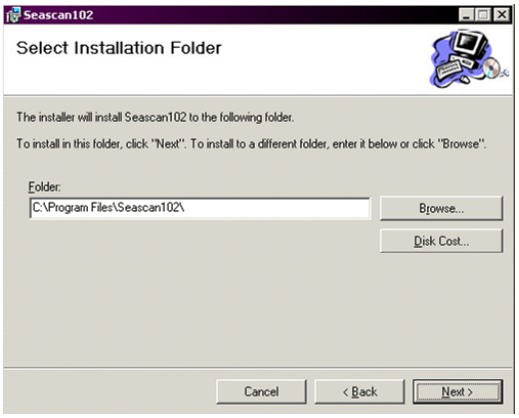


3 Double click on setup to run the installation application. This following installation window will appear.


Seascan102
Welcome to the Seascan102 Setup Wizard
The installer will guide you through the steps required to install Seascan102 on your computer.
WARNING: This computer program is protected by copyright law and international treaties. Unauthorized duplication or distribution of this program, or any portion of it, may result in severe civil or criminal penalties, and will be prosecuted to the maximum extent possible under the law.
Cancel
< Back
Next >

*Click **Next** to continue the installation procedure*

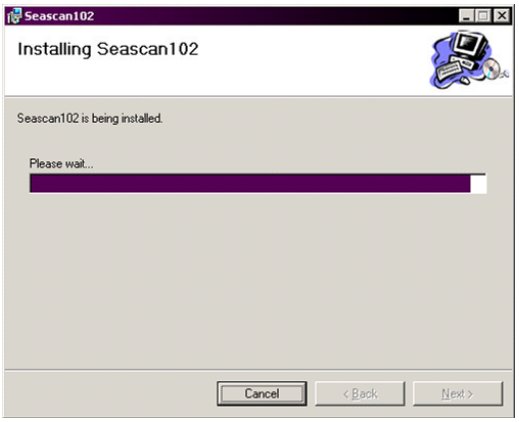
4 Select the required installation folder.


Seascan102
Select Installation Folder
The installer will install Seascan102 to the following folder.
To install in this folder, click "Next". To install to a different folder, enter it below or click "Browse".
Folder:
C:\Program Files\Seascan102\
Browse...
Disk Cost...
Cancel
< Back
Next >

It is recommended that the default folder (shown in the folder box) is used, otherwise, the user may choose to input an alternative folder name..

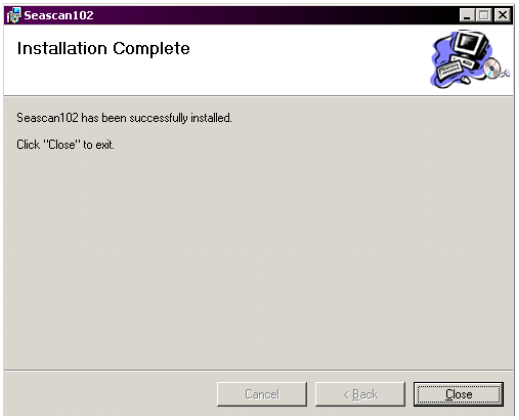
*Click **Next** to continue the installation procedure*

5 The software will install to the chosen location.



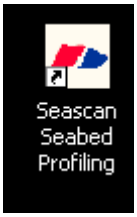
*On completion, Click **Next** to continue the finish procedure*

6 The Installation Complete window will be displayed.



*To complete the installation procedure, press **Close***

7 The installation procedure will produce the Seascan Seabed Profiling icon on the desktop.. An entry for Seascan will be created in the programmes menu (start/programmes/Seascan) that will contain the both a shortcut to **seascan** software application and the user manual.



Installation is now completed

A.2.3 Uninstalling the Seascan Seabed Profiling Application

Un-installing any existing Seabed profiler application from the host PC may be carried out in two ways

a. By re-running the installer from the original disk and selecting 'remove'

b. From Control Panel/Add Remove Programmes,

i. Select Seascan102 (or Seascan 202)

ii. Click Remove.

A.2.4 Connecting Seascan for the first time over USB

1. After installation of the software to the host PC, power up the **sea**scan.
2. Insert the USB cable in the PC, and the other end in the **sea**scan.

3 After a short delay note the pop-up window:

4 This is followed by the 'Wizard:'- we start installation for the SEASCAN Device Serial Port converter

Found New Hardware Wizard
Welcome to the Found New Hardware Wizard
This wizard helps you install a device driver for a hardware device.
To continue, click Next.
< Back
Next >
Cancel

Click Next to Continue

5 The Install Hardware device drivers menu will be displayed.

Select the Option to **search a suitable drive for my device**

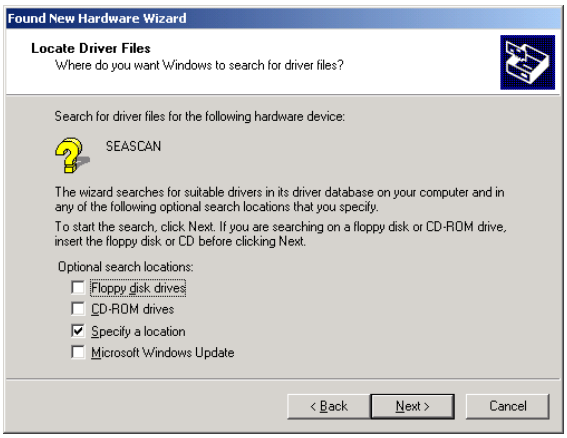
Click Next to continue

Found New Hardware Wizard
Install Hardware Device Drivers
A device driver is a software program that enables a hardware device to work with an operating system.
This wizard will complete the installation for this device:
SEASCAN
A device driver is a software program that makes a hardware device work. Windows needs driver files for your new device. To locate driver files and complete the installation click Next.
What do you want the wizard to do?
Search for a suitable driver for my device (recommended)
Display a list of the known drivers for this device so that I can choose a specific driver
< Back
Next >
Cancel

6 On the Locate Driver Files window

Select the option to **Specify a Location**

Click Next to Continue

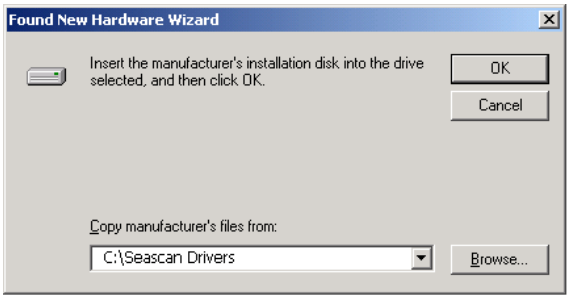

Found New Hardware Wizard
Locate Driver Files
Where do you want Windows to search for driver files?
Search for driver files for the following hardware device:
SEASCAN
The wizard searches for suitable drivers in its driver database on your computer and in any of the following optional search locations that you specify.
To start the search, click Next. If you are searching on a floppy disk or CD-ROM drive, insert the floppy disk or CD before clicking Next.
Optional search locations:
Floppy disk drives
CD-ROM drives
Specify a location
Microsoft Windows Update
< Back
Next >
Cancel

7 When this menu appears, select **browse**

Use the menu to select the following folder

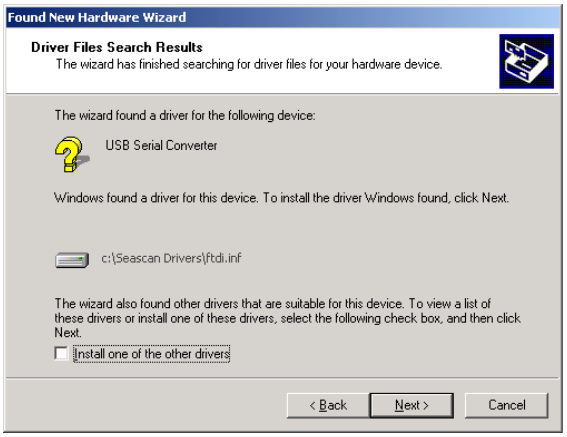
C:\Seascan Drivers

Click OK to Continue



8 The Driver File search results window and will automatically install the necessary driver for the Seascan unit.

Click Next to Continue


Found New Hardware Wizard
Driver Files Search Results
The wizard has finished searching for driver files for your hardware device.
The wizard found a driver for the following device:
USB Serial Converter
Windows found a driver for this device. To install the driver Windows found, click Next.
c:\Seascan Drivers\ftdi.inf
The wizard also found other drivers that are suitable for this device. To view a list of these drivers or install one of these drivers, select the following check box, and then click Next.
Install one of the other drivers
< Back
Next >
Cancel

9 The driver will install and the following window will be displayed.

Click FINISH

Found New Hardware Wizard
Completing the Found New Hardware Wizard
USB Serial Converter
Windows has finished installing the software for this device.
To close this wizard, click Finish.
< Back
Finish
Cancel

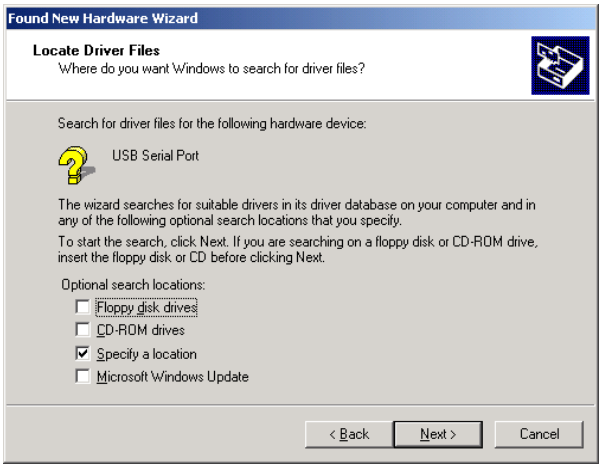
10 A second driver will then install and the following window will appear. This driver is the USB Serial Port driver

Click Next to continue

Found New Hardware Wizard
Welcome to the Found New Hardware Wizard
This wizard helps you install a device driver for a hardware device.
To continue, click Next.
< Back
Next >
Cancel

11 Repeating the process, select the **specify a location** option.

Click Next to continue

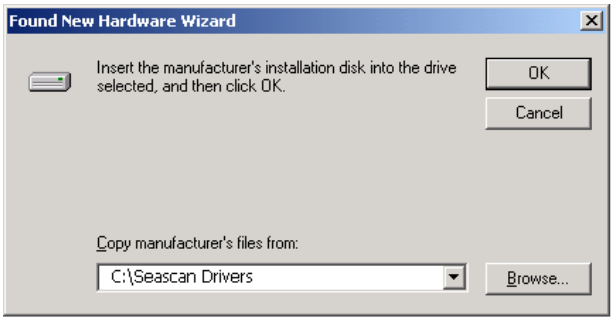

Found New Hardware Wizard
Locate Driver Files
Where do you want Windows to search for driver files?
Search for driver files for the following hardware device:
USB Serial Port
The wizard searches for suitable drivers in its driver database on your computer and in any of the following optional search locations that you specify.
To start the search, click Next. If you are searching on a floppy disk or CD-ROM drive, insert the floppy disk or CD before clicking Next.
Optional search locations:
Floppy disk drives
CD-ROM drives
Specify a location
Microsoft Windows Update
< Back
Next >
Cancel

12 Click **Browse**

Use the menu to select the following folder

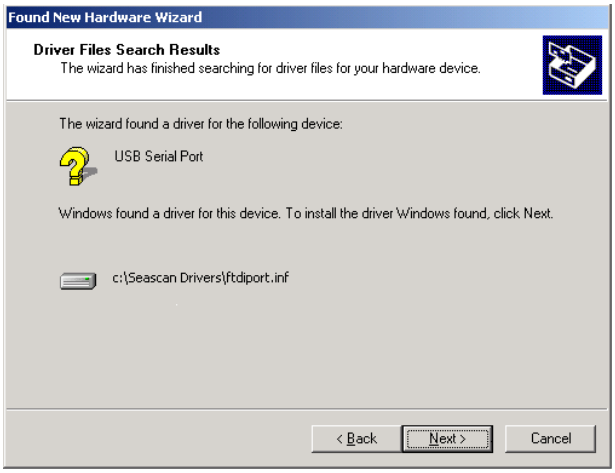
C:\Seascan Drivers

Click OK to Continue



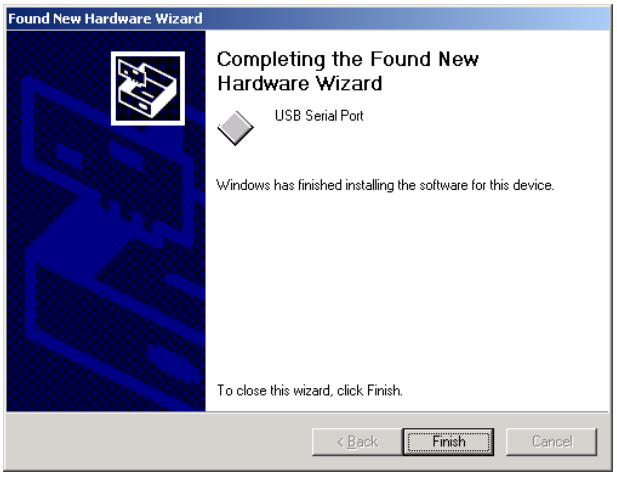
13 The Driver File search results window and will automatically install the necessary driver for the Seascan unit.

Click Next to Continue


Found New Hardware Wizard
Driver Files Search Results
The wizard has finished searching for driver files for your hardware device.
The wizard found a driver for the following device:
USB Serial Port
Windows found a driver for this device. To install the driver Windows found, click Next.
c:\Seascan Drivers\ftdiport.inf
< Back
Next >
Cancel

14 The driver will install and the following window will be displayed.

Click FINISH


Found New Hardware Wizard
Completing the Found New Hardware Wizard
USB Serial Port
Windows has finished installing the software for this device.
To close this wizard, click Finish.
< Back
Finish
Cancel

15 You may be requested to restart the PC after the installation

Click Yes.

A.3 CHECKING THE COM PORT CONFIGURATION

The virtual COM port allocated to the **seascan** when using the USB connection may vary and is dependant on the particular configuration of the host PC.

The actual COM port may be checked through the windows setting by following these instructions.

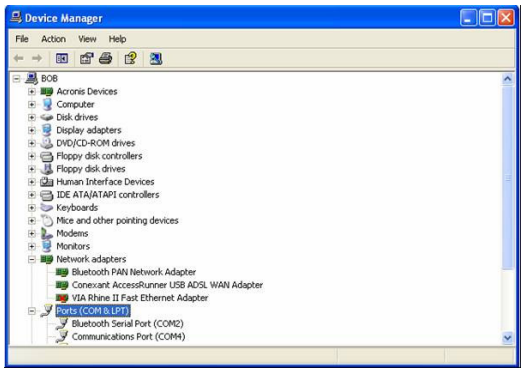
1 Ensure that the Seacsan unit is connected to the PC using the USB connection

2 Navigate to Windows Control Panel <Start/Settings/Control Panel >

3 Select System to bring up the system menu and select the hardware tab

System Properties
System Restore
Automatic Updates
Remote
General
Computer Name
Hardware
Advanced
Device Manager
The Device Manager lists all the hardware devices installed on your computer. Use the Device Manager to change the properties of any device.
Device Manager
Drivers
Driver Signing lets you make sure that installed drivers are compatible with Windows. Windows Update lets you set up how Windows connects to Windows Update for drivers.
Driver Signing
Windows Update
Hardware Profiles
Hardware profiles provide a way for you to set up and store different hardware configurations.
Hardware Profiles
OK
Cancel
Apply

4 Click on the Device Manager to obtain a window displaying the hardware tree.



5 Expand the items ‘ports (COM & LPT)’ and note an additional entry with a descriptor such as “USB Serial Port (COM8).

6 DETACH the USB- Seascan Connection and note that the entry

described above is removed from the hardware tree.

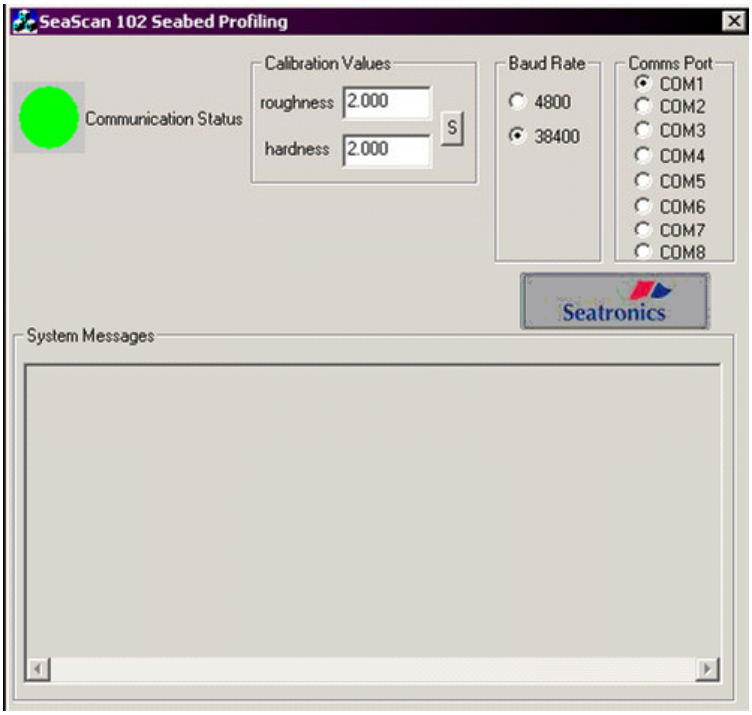
Reinstate the connection and note the reverse.

7 Note the COM port number. This is the virtual COM port number used withing the Seascan Seabed profiling application for connection of the unit over USB.

A.4 USING THE SEABED PROFILING APPLICATION

Each time the seascan unit is turned on, or connected over the USB, the virtual COM port driver is automatically loaded. This occurs during the seascan initiation sequence. To ensure that the application connects to the newly loaded driver, follow these instructions.

Run the seascan Seabed Profiling Application from the desktop or programme menu



1) Initialise the seascan so it is in normal operation.

2) After a short delay the driver will load.

3) The appropriate COM port may be selected by clicking off the COM setting in the right hand side of the application window and clicking back on it again.

4) This procedure should be followed each time that the seascan is restarted.

A.5 SELECTING THE BAUD RATE

As supplied, the seascan unit will communicate at 4800 baud, the older NMEA standard. From the year 2000, a higher standard of 38,400 baud has been adopted. This will normally be configured by the dealer on request.

If it is wanted to use this speed, then it is necessary to remove both front and back panels, and unclip all connectors. Slide the PCB out, and onto an anti-static surface. Locate link P17. Place the supplied link so that it shorts the two pins together.

Slide the PCB most of the way back in again. Reconnect the exposed connectors in the same places as detached from. This should be easily achieved without straining the cables.

From the other side, pull the PCB out a little, and attach the connectors from the other panel. Screw the rear panel and plastic bezel back into place; then do the same with the front panel.

Note that the PC's software will also need to be set to the correct baud rate on next use.

Link at P17 shorting = 38,400 baud. Link not shorting = 4800 baud